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Phys040B: **Formulae**

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0   General relationships

$$\mathbf{F} = -\boldsymbol{\nabla} U$$

$$U = -\int \mathbf{F}\,\mathrm{d}x$$

$$K = \frac{p^2}{2m}$$

$$a_r = \frac{v^2}{r}$$

1   Gravitation

$$\mathbf{F} = \frac{Gm_1m_2}{r^2}\,\hat{r}U \qquad\qquad = -\frac{Gm_1m_2}{r}$$

$$v = \sqrt{GM/r}$$

$$T^2 = \frac{4\pi^2}{GM}r^3$$

2   Fluids

$$P = F/A$$

$$P = P_0 + \rho g d$$

$$F_1 = \frac{A_1}{A_2}F_2 + \rho g h A_1$$

3   Oscillations

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